

云南曲靖张家营一肺鱼齿板

王 俊 卿

(中国科学院古脊椎动物与古人类研究所)

本文记述的肺鱼齿板是 1979 年在云南进行野外工作时采获的。标本产自云南曲靖张家营东山中泥盆统曲靖组。登记号 V6257

经观察这一标本很可能属于双翼鱼科 (Dipteridae), 代表一新属、新种。

特征 一保存不完整的齿板, 冠面呈扇形。具 9 条齿脊, 彼此近于平行, 脊上具有数目不等的齿突, 表面具有珐琅质层。齿谷表面粗糙并缺失珐琅质层。靠近齿板外缘内侧, 在齿板冠面上有一浅槽。

描述 一件保存不完整的左下齿板, 仅前侧具脊的部分被保存下来, 而后中光滑的台面部分则缺失。齿板中等大小, 呈扇形。保存部分的最大长度 21 毫米, 最大宽度 16 毫米。齿脊上的珐琅质大部分被风化掉, 只有 1—4 脊上的部分被保存下来。齿板的前外角尖, 并向前凸伸; 后外角圆钝。保存部分的前中缘直, 后缘弯而短, 仅为前中缘的 1/3; 外侧缘外凸呈弧形。齿板冠面前侧具有 9 条脊, 彼此近于平行, 脊上有珐琅质层, 除第三脊断面为近等腰三角形外, 其余各脊的断面均为不等三角形。第一脊窄而短, 约为前中缘的 1/2; 第二脊最粗大, 以后者则递次变低; 以第三脊最长。各脊以谷相分, 谷底没有珐琅质层。第二谷为最深而宽, 其谷口宽约 5 毫米, 向后依次变窄变浅。除第一谷外, 其余向外均达外缘。第一脊窄小, 无齿突, 其它各脊均由齿突排列而成。齿突钝圆, 数目也不等, 仅部分保留, 多者 6 个, 少者 2 个。第二脊外端的一个齿突小, 并以较大的齿缺同其它者分开。其它各齿脊外侧的齿突均较内侧的大; 在第四脊的外面, 还有一个小的齿突。在齿板的冠面上靠近外缘处, 有一浅的凹槽。

比较与讨论 在已经描述的泥盆纪肺鱼化石中, 有 11 个属具有齿板, 其中有 7 个属归于双翼鱼科 (Dipteridae)。肺鱼类多数具有比较特殊的齿板, 因此齿板的大小、形状和结构就成了鉴定肺鱼化石的主要依据。本文所记述的齿板与双翼鱼 (*Dipterus*) 有些相似, 但主要区别为曲靖标本的齿脊短而多, 齿突少, 呈钝圆形。从整个形态和结构看, 曲靖的标本同 *Sunwapta* 的相似, 其不同之处在于 *Sunwapta* 的齿板较大, 齿突不明显。在具有向外凸出的外边缘上, 显然同 *Palaeodophus* 有相同之处, 但后者齿板特大, 齿脊少而粗, 因此极易区别。就齿脊数目而言, 所记述的标本同 *Rhinodipterus* 相同, 然而在 *Rhinodipterus* 的齿板上每个齿脊只有一个齿突, 所以两者的差异十分清楚。在齿板的形状上, 曲靖的标本同 *Chriodipterus* 很相近, 但后者的齿板较大, 齿脊和齿突均少。

从上述可以看出, 曲靖的标本与双翼鱼科的成员较为相近, 但与上述各属的区别也是明显的, 可订为一新属、新种, 名为曲靖东山鱼 (*Dongshanodus qujingensis* gen. et sp. nov.) (图版 1, 图 1.2)。

泥盆纪肺鱼化石多数发现在陆相地层中, 在海相地层中虽有发现但较稀少, 因此, 在

海相地层中发现的肺鱼化石就很有意义。曲靖的标本发现在中泥盆统曲靖组海相生物灰岩中, 与其共生的有大量腕足类和其它一些无脊椎动物化石, 在其下的海相生物灰岩中, 还有很多较大的盾皮鱼类的骨片。

Thomson (1967) 认为: 淡水种类的肺鱼是从海生种类演化而来的。海生的种类比较原始, 其齿板上的齿脊不是呈放射状向外散开, 而是呈与前后轴近平行的排列着, 并且在齿脊上有明显的小齿突。曲靖标本的特征基本上与上述的情况相近, 所以新属可能代表中泥盆世一比较原始的海生种类。

除了在本文中所记述的采自曲靖张家营东山中泥盆统的肺鱼齿板外, 在云南广南附近下泥盆统泥岩中也采到过保存比较好的肺鱼头甲的一部分, 骨片界线及感觉沟均清晰可见。在云南, 除了已经发现和描述过的大量早泥盆世的无颌类, 早、中泥盆世的胴甲类、节甲类以及正在进行描述的总鳍鱼类外, 从保存化石的岩性看, 早、中泥盆世的肺鱼化石有大量采集到的可能性。肺鱼类在云南泥盆纪鱼群中可能将是一个重要成员。

肺鱼类在地史上延续的时间较长, 到目前为止世界上还有三个现生的属, 其化石从早泥盆世一直到新生代的地层中均有发现。肺鱼类化石在我国已经发现, 而作过详细描述的都是中生代的种属。今在泥盆纪地层中发现的肺鱼类化石还是首次。因此, 泥盆纪肺鱼化石的记述不仅填补了这方面的空白, 而且为泥盆纪动物群增添了新的内容。过去文献中所记载的泥盆纪肺鱼化石, 主要分布在西欧、北美和澳大利亚, 所以在我国泥盆纪肺鱼化石的发现, 扩大了肺鱼在泥盆纪的分布范围。

在研究过程中, 承刘宪亨、张弥曼两同志细心指导, 王纯德和胡惠清两同志分别代为照像和绘图, 作者在此一并致以谢意。

(1980 年 4 月 4 日收稿)

参 考 文 献

- Denison, R. H., 1974: The structure and evolution of tooth in Lungfishes. *Fieldiana: Geol.*, 33, pp. 31—58.
- Forster-Cooper, C., 1937: The Middle Devonian fish fauna of Achanarras. *Trans. Roy. Soc. Edinburg*, 59, 223—240.
- Hill, E. S., 1933: On a primitive Dipnoan from the Middle Devonian rocks of New South Wales. *Ann. Mag. Nat. Hist.*, (10)11, 634—643.
- Jarvik, E., 1967: On the structure of the lower jaw in Dipnoan: with a description of an early Devonian dipnoan from Canada, *Melanognathus canadensis* gen. et sp. nov. *Jour. Linn. Soc. London (Zool)*, 47, pp. 155—183.
- Miles, R. S., 1971: In palaeozoic fishes, by J. A. Thomas (2nd. ed), London, Chapman and Hall.
- , 1977: Dipnoan (lungfish) skulls and the relationships of the group: a study based on new species from the Devonian of Australia. *Zool. J. Linn. Soc.*, 61(1—3).
- Obruchev, D. V., 1967: Class osteichthyes, in Fundamentals of palaeontology. 11. *Agnatha, Pisces*, ed Obruchev, D. V. (Israel. program for scientific translation, Jerusalem).
- Perkins, R. L., 1971: The dipnoan fish *Dipterus* from the Middle Devonian (Givetian) of Alaska. *Jour. Palaeontol.*, 45: 3, 554—555.
- Watson, D. M & Gill, E. L., 1923: The structure of certain Palaeozoic Dipnoi. *J. Linn. Soc. (Zool)*, 35, 163—216.
- White, E. I., 1965: The head of *Dipterus valenciennesi* Sedgwick & Murchison. *Bull. Br. Mus. Nat. Hist. (Geol)*, 11, 1—45.
- Woodward, A. S., 1891: Catalogue of Fossil Fishes in the British Museum (Nat. Hist.) 2, pp. 234—276.

A TOOTH PLATE OF DIPNOAN FROM QUJING YUNNAN

Wang Junqing*

(Institute of Vertebrate Paleontology and Paleoanthropology, Academia Sinica)

Abstract

A left lower tooth plate discovered from marine Zhangyiaying Formation of Devonian of Qujing county, Yunnan is here described to represent a new species in a new genus.

Unfortunately tooth plate is incomplete, and most of the enamel covering the ridge was washed away. The tooth plate is of intermediate size, length of the tooth plate 21mm, breadth 16mm, fan-shaped in outline, with convex longitudinal exterior margin. The preserved posterior short margin about $\frac{1}{3}$ of the anterior long margin. The tooth plate with 9 (the first ridge about $\frac{1}{2}$ of the anterior long) ridges, bearing small and round denticles, 2—6 on each ridge in the preserved except the first, divided by deep groove between them. The ridges nearly parallel, dorsal surfaces of the ridges covered with enamel, the groove rough and lacking the enamel covering. The second ridge stouter and higher with an isolated denticle at the exterior end. On the face of the tooth plate with a more shallow trough near the exterior margin. The third ridge longer and slightly arched outward.

The specimen is similar in several features to *Dipterus* but differs from the latter in the shape of the tooth plate, and numbers of the ridge and denticles on each ridge. The Qujing specimen and *Sunwapta* are alike in the form and structure of the lower tooth plate, but in *Sunwapta* the lower tooth plate is bigger, the ridges show faint sign of becoming subdivided into small denticles, so the distinction between the Qujing specimen and *Sunwapta* are very clear. It differs also from *Palaeodophus* in the respects of the size of the tooth plate and number of the ridges. Although the specimen is similar in the number of the ridges to *Rhinodipterus*, yet differs from latter in the numbers of the denticles on each ridge. The Qujing specimen and *Chriodipterus* resemble each other in the shape of the tooth plate but the tooth plate of *Chriodipterus* is bigger, the ridge and denticles are less. Therefore there is no doubt that the tooth plate from Qujing represents a new genus and named *Dongshanodus qujingensis* gen. et sp. nov.

There are a lot of brachiopods and other animal with Dipnoan symbiosis which proving this fish lived in a marine environment.

Besides the tooth plate described in this paper, a well preserved part of the skull roof of Dipnoan was found several years ago from Guangan, Yunnan.

*Formerly Wang Chun-ching